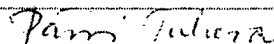# DECLARATION

I hereby declare that to the best of my knowledge and belief the following is
a true translation of a certified copy of the Finnish Patent Application No.
20022176 filed on 11.12.2002.

Declared in Helsinki, Finland, on 24 February 2009

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Translator

Method and apparatus for realizing an enhanced voice message

The invention relates to a method and arrangement for realizing voice messages in a simple and advantageous manner.

5   At present, telephone answering machines are very popular. Operators offer a corresponding chargeable service for wireless devices. Thus the answering services of mobile phones and other portable devices are realized as a separate network service. A voice message can be left to person called, but not reached, when a voice connection with the desired number could not have been established. After a request

10   for establishing voice connection, a voice connection is attempted to be established between the requesting device and the desired receiving device. In case this does not succeed within a given period of time or after a certain number of trials, connection can be established with the receiver's voicemail box, where a voice message can be recorded through the connection-establishing device.

15   A voicemail system is a chargeable service maintained by an operator or by some other party. The service provider manages a system located at a given location in the network, and in the system, for each device connected to the system, there is arranged a given storage space for the voice messages to be recorded. The device connected to the system can "open" the recorded voice messages, i.e. listen to them,

20   by calling its voicemail box. Typically the calling party must supply a password in order to ensure that only the authorized person can get hold of the contents of the voicemail box. When a voice message is recorded in the voicemail box, the device managing the voicemail box receives a notice of the received voice message, typically as a text message. A voicemail box is a chargeable service that can be

25   subscribed by the owner. In addition to a possible connecting fee, the owner of the voicemail box pays for each call when he phones to his own voicemail box, i.e. when he listens to the received messages. The person who leaves a message is charged for the time when the connection is open between his device and the voicemail box.

30   The service means expenses both for the person leaving a message and for the person receiving it. In addition, the service provider must have a system for recording voice messages and an appropriate space for storing said messages. Naturally the maintenance of the system also uses up the resources of the party that offers the services.

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The object of the present invention is to simplify and improve the realization of voice messages in a wireless environment.

The object is achieved so that the voice message for the receiver who was not reached is transmitted as a multimedia message (MM).

5   The invention is characterized by what is set forth in the characterizing parts of the independent claims. Preferred embodiments of the invention are described in the dependent claims.

According to the invention, the transmission of voice messages is simplified both from the point of view of the sender, the receiver and the operator. In a typical 10   situation, a call is made by a mobile phone in order to establish a voice connection with the receiving device. The voice connection is desired to be established between the caller's device and the receiving device, which is identified by a certain telephone number. A voice connection cannot be established for instance if the receiving device is not located within the coverage area, or if said device is 15   occupied at the moment in question. When for example after a given period of time or a given number of trials it is found out that the connection with the receiving device cannot be established at a certain moment, according to a preferred embodiment of the invention, there is automatically started a multimedia message service (MMS), and in particular, a voice message recording function of said 20   service.

According to a preferred embodiment of the invention, the user of the device that requested the establishment of the connection can record a voice message of a desired length exactly as before, but now – instead of needing to establish a connection with the receiver's voicemail box – the voice message is recorded in a 25   volatile random access memory of the transmitting device. The voice message is recorded and stored as a sound clip of a multimedia message, which sound clip can then be transmitted directly to the receiver as a multimedia message. According to a preferred embodiment, before sending the multimedia message, the user is asked to confirm whether he wants to send the recorded voice message. The user can 30   confirm the transmission, in which case the message is transmitted to the same number with which the user tried to establish a voice connection. According to a preferred embodiment of the invention, the user can, if he so desires, still edit the message prior to the transmission. The produced multimedia message can also be transmitted automatically, when the recording of the sound clip is finished. In case 35   the receiver's device cannot process a sound clip delivered in MMS form, the

produced sound clip can be transmitted from a messaging service receiving the receiver's messages further to the receiver's voicemail box.

For the sender, the recordable sound clip of a multimedia message, according to the preferred embodiment of the invention, is easier and more sensible to use than the prior art voicemail box, because the sound clip according to the preferred embodiment of the invention can still be edited even after recording, in case the recorded message does not satisfy the sender. Moreover, the sender need not establish an active connection with another device of the network, such as a voicemail box. The message can be transmitted in the network according to typical message transmission protocols. The receiver of a multimedia message according to a preferred embodiment of the invention receives the message directly in his own device, and he neither needs to take the trouble and phone his voicemail box nor pay for receiving the message. The transmission of a voice message according to a preferred embodiment of the invention is simple and quick and does not require separate locations in the network for storing the messages.

Let us now observe the invention and its preferred embodiments in more detail with reference to the appended drawings, where

figure 1   is a flow diagram illustrating a method according to a preferred embodiment of the invention,

figure 2   is a block diagram illustrating a mobile station according to a preferred embodiment of the invention,

figure 3   illustrates a multimedia message according to a preferred embodiment of the invention, and

figure 4   illustrates the transmission of messages in an arrangement according to a preferred embodiment of the invention.

Figure 1 illustrates a method for transmitting multimedia messages. In step 101, there is made a request for establishing a connection with a chosen number of the receiver. Typically the requested connection is a voice connection, but it may also be some other type of connection, where both or all connected devices actively participate, such as for instance a so-called chat connection. The request for establishing connection is made in a typical way, and the requested connection is attempted to be established in a manner known as such. Typically the connection is attempted to be established for the duration of a predetermined period or for a given

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number of times. The connection cannot be established for instance when the searched receiver is not within the coverage area of the network, or when a connection with the receiving device cannot be established for example because the receiver is already speaking on the phone or because his device is otherwise

5   occupied or closed.

If the connection is successfully established, the connection is made in the usual way between the requesting device and the specified receiving device. The desired receiver can be identified for example on the basis of a telephone number, an identifier (ID) or an address (URI, Uniform Resource Identifier). In case the

10   connection was not established in step 101, but the attempt failed 102, in step 103 there is automatically started, according to a preferred embodiment of the invention, a multimedia messaging service (MMS), and the sound clip recording function of said service is activated. The user of the device that requested the connection can directly start recording a voice message. The voice message dictated by the user, i.e.

15   a so-called sound clip, is recorded in step 104 in the random access memory of the device as a sound clip of a multimedia message. The recorded sound clip forms part of a multimedia message, and the defined receiver of said message is the same receiver with whom the connection was attempted to be established in step 101. According to a preferred embodiment of the invention, the receiver information and

20   the multimedia message containing the sound clip are automatically produced. In addition, according to a preferred embodiment of the invention, at the beginning of the multimedia message there is added an identifier by which the operator and/or the receiving device can recognize a multimedia message according to the invention from an ordinary multimedia message that is not produced automatically. The

25   created multimedia message is stored in the volatile random access memory of the device.

According to a preferred embodiment of the invention, the created multimedia message is sent 107 automatically to the receiver with whom the connection was earlier attempted to be established. In figure 1, the operation according to said

30   embodiment is illustrated as a dotted line. According to another preferred embodiment, when the multimedia message to be transmitted, containing the sound clip, is produced in step 104, the user is once more asked in step 105 to confirm whether the produced multimedia message should be sent to the receiver. The user may accept the sending in step 105, whereafter the multimedia message is

35   transmitted to the receiver in step 107. If the user does not accept transmission directly in step 105, the created multimedia message can still be edited in step 106.

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In step 106, the user can for instance add in the multimedia message, apart from the recorded sound clip, also pictures, text or video image. The recorded voice message can be edited, or it can be completely deleted, or the receiver's connection information can be edited. In step 106, it is possibly to edit all features of the
5   multimedia message that in general can be edited. When the desired corrections are completed, step 105 is resumed, and the user is once again asked to confirm the transmission of the message prior to transmitting said message to the receiver in step 107. The multimedia message to be transmitted can be further edited after step 105, before step 107, by returning to step 106.

10   The created multimedia message is typically delivered to the same receiver, with whom the connection was originally attempted to be established. It is assumed that the receiving device is capable of processing and receiving multimedia messages. In case the multimedia message cannot be received by the device to which the message was sent, the multimedia message can, according to a preferred embodiment, be
15   further sent to the receiver's voicemail box. According to a preferred embodiment of the invention, the operator can recognize a multimedia message according to the invention from a regular message by means of an identifier included in the message, said identifier indicating that said message is produced automatically after a failed attempt of establishing a connection. Multimedia messages received in a messaging
20   server or in the receiving device can also be processed in various different ways on the basis of the identifier provided at the beginning of the message. In a network, messages are typically transmitted between messaging servers. According to a preferred embodiment of the invention, the receiver's messaging server can transmit the multimedia message further to the receiver's voicemail box, if the multimedia
25   message is identified as a voice message according to the invention, or if the receiver is not capable of receiving a multimedia message or if he for example does not within a certain period of time fetch the received multimedia message from his messaging server. Regular multimedia messages, that are not identified as voice messages according to the invention, can be directed from the messaging server for
30   example to a given www page, in case the device defined as the receiver is not capable of receiving them.

Figure 2 illustrates a device 200 according to a preferred embodiment of the invention. Typically the device 200 is a wireless communication device, such as a mobile phone, that can be used for establishing a connection with the receiving
35   device. In order to establish connections, the device 200 comprises an antenna 208, a duplexer, i.e. a transceiver 207, a transmission branch 205 typically comprising a

transmission unit, an A/D converter and an amplifier, and a reception branch 206 typically comprising a reception unit, a D/A converter and an amplifier. The exemplary data input elements illustrated in the device 200 include a keyboard 202 and a microphone 210. In addition to these, typical data input elements are various

5   touch surfaces, touch pens and touch displays. Often the device 200 also includes a camera for feeding picture data. As data presentation means, the device 200 comprises a display screen 203 and a loudspeaker 209. In addition, the device may include various units for producing and reproducing sound, as well as other units for presenting data. Moreover, the device 200 comprises a control unit 201 for

10   processing data and for controlling the operation of all components of the device. The memory unit 211 includes both base memory for storing data and volatile random access memory. In addition, the device 200 comprises a multimedia messaging service (MMS) 204, which according to a preferred embodiment of the invention can be started automatically, in case the requested voice connection

15   between the device 200 and the receiving device cannot be established. In particular, in that case there is started the recording function of the sound clip 204c of the multimedia messaging service. The multimedia messaging service 204 of the device 200 generally includes elements for processing a voice message 204c, a picture message 204a, a text message 204b and video image 204d. According to a

20   preferred embodiment, the recording of a voice message 204c is started automatically, and the obtained result is a sound clip of the multimedia message, which is stored in the volatile random access memory of the memory unit 211.

In a preferred embodiment, the control unit 201 of the device 200 includes a determination, according to which the created multimedia message is automatically

25   transmitted to the number of the receiver who was not reached in spite of attempts. In that case the device 200 comprises elements for automatically transmitting the multimedia message containing the sound clip to said number of the receiver with which a voice connection was attempted to be established. According to another preferred embodiment, the control unit 201 includes elements for asking the sender

30   to confirm the transmission typically on the display 203 of the device 200. The user can confirm the transmission for instance by selecting the OK-alternative on the keyboard 202, whereafter the multimedia message is transmitted to the receiver under control of the control unit 201, through the transmission branch 205, the duplexer 207 and the antenna 208.

35   Figure 3 illustrates a multimedia message according to a preferred embodiment. The multimedia message includes a header, i.e. an identifier 301 containing mainly

information as to how, in what form and according to which protocol the multimedia message is transmitted from the transmitting device to the receiving device. The header 301 may also include an identifier by which the multimedia message is identified as an automatically created multimedia message according to

5   the invention. Said identifier that is preferably included in the message automatically may also be located in some other part of the multimedia message, for instance in the text element 304. The presentation element 302 includes instructions for presenting the contents of the multimedia message in the display, loudspeakers and other presentation means of the device. The presentation element 302 defines in

10   which order, for how long, how and by which tools each multimedia message element is presented. The presentation element 302 can be realized for example in the SMIL (Synchronized Multimedia Integration Language) or WML (Wireless Markup Language) programming language. There can even be several presentation elements 302, but in that case one of them is a so-called root element, which is

15   indicated by means of a so-called start parameter. The presentation element 302 is an optional part of the multimedia message. In case the multimedia message does not at all include a presentation element 302, the contents of the multimedia message are presented according to the parameters of the presenting device. A multimedia message according to the embodiment illustrated in figure 3 also

20   includes multimedia message elements among which there are illustrated by way of example a picture element 303, a text element 304 and an audio element 305. In addition to these, a multimedia message may include various other multimedia message elements. The mutual order of the multimedia message elements is of no importance, because they are presented in a way defined in the presentation element

25   302. The presentation element 302 and the multimedia message elements 303, 304 and 305 together constitute the body of the multimedia message.

The multimedia messages to be sent are transmitted from the transmitting device to the sender's messaging server. The messaging server, i.e. so-called proxy server, is located in the network and communicates interactively with the messaging unit or

30   messaging program of the transmitting device. When transmitting multimedia messages between a messaging server and a mobile station, there are used the WAP (Wireless Application Protocol) and WSP/HTTP (Wireless Session Protocol / Hypertext Transfer Protocol) protocols. Also in an external Internet network, multimedia messages are transmitted according to the typical transmission protocols

35   between the messaging servers of the sender and the receiver.

Figure 4 illustrates the transmission of messages in an arrangement according to a preferred embodiment of the invention. In figure 4, the sender and the receiver are mobile devices, for instance devices 200 as illustrated in figure 2. When the sender wishes to send a message, the transmitting mobile station transmits a message

5   sending request 401 to its messaging server. In connection with the message sending request, there also is transmitted a multimedia message to the messaging server. From the sender's messaging server, the multimedia message is sent to the receiver's messaging server 403 through a public network. The sender's messaging server further sends to the sender a confirmation that the multimedia message was

10   transmitted 402 further.

The receiver's messaging server receives the transmitted multimedia message and sends a notification message of the received multimedia message to the receiver 404. At this stage, the receiver only receives identification information of the multimedia message. The multimedia message proper, complete with the body, is

15   still located in the receiver's messaging server. After receiving the notification message 404, the receiver can automatically fetch the multimedia message from a location in the messaging server, said location being indicated in the notification message. If the receiver does not want to fetch the newly arrived multimedia message immediately, he sends to the messaging server a reception notification

20   message 405 in order to confirm that he has received the notification message. When the receiver later wishes to fetch the received multimedia message from the messaging server, he sends a fetch request message 406 to that effect to the messaging server. The messaging server transmits the multimedia message, complete with the body, to the receiver 407. The receiver receives the multimedia

25   message and sends to the messaging server a notification 408 to confirm that the multimedia message is received. Depending on the determinations, there can still be sent a confirmation 409 to the sender that the message was sent to the receiver.

According to a preferred embodiment, in the receiver's messaging server there arrives a multimedia message 403, and a respective notification message 404 is sent

30   to the chosen receiver. In case the multimedia message includes an identifier, on the basis of which it is identified as a multimedia message according to the present invention, said information can be transmitted to the chosen receiver along with the notification message 404. In case the receiver is not capable of receiving a multimedia message, this can be indicated to the messaging server in a reception

35   notification 405. As a consequence, according to a preferred embodiment of the invention the messaging server converts the sound clip of the multimedia message

into a regular voice message and delivers it to the receiver's voicemail box. Thereafter the messaging server sends to the receiver, in a known fashion, a notification of a received voicemail message. According to another preferred embodiment, the receiver can prevent the transmission of the multimedia message to his device. Also in this case, the sound clips originally transmitted to the messaging server as multimedia messages according to a preferred embodiment of the invention can be delivered to the receiver through a conventional voicemail box. On the basis of the identifier provided in the multimedia message according to a preferred embodiment of the invention, the multimedia message can be transmitted for example directly from the messaging server to the receiver's voicemail box or to a www page. Advantageously the editions and rerouting of the multimedia message are realized in a programmed process in the messaging server.

According to a preferred embodiment of the invention, the messaging service only directs the multimedia message to the receiver's voicemail box, in case the receiver is not willing or capable of receiving the multimedia message. In this embodiment, the voicemail box located in the network may receive also multimedia messages, and particularly when opening voice messages it can process a multimedia message sound clip into a similar audio reproduction as a normal voice message. According to another embodiment, multimedia messages can be directed from the messaging server directly or according to the instructions of the receiving device to a given www page. According to a preferred embodiment, the multimedia message according to the invention can be identified by an operator, a messaging server and/or a receiving device on the basis of a given identifier included in the multimedia message. Thus identified multimedia messages can be further processed in various different ways, or for instance with different priorities than ordinary multimedia messages.

Claims

1.   A method for transmitting a multimedia message, **characterized** in that the method includes steps of:

-   making a request for establishing a connection with a receiver (101),

5   -   as a response to a failed attempt for establishing a connection (102), automatically starting a multimedia messaging service (MMS) and activating a recording function of a sound clip (103),

-   recording a voice message as a sound clip of a multimedia message (104), and

10   -   transmitting the created multimedia message to the receiver (107).

2.   A method according to claim 1, **characterized** in that it includes a step of including an identifier in the multimedia message by which identifier the multimedia message can be identified as created automatically as a response to a failed attempt for establishing a connection.

15   3.   A method according to claim 1, **characterized** in that it includes a step of attaching (106) in the multimedia message, in addition to the sound clip, one of the following: text, picture, video image or a combination of these.

4.   A method according to claim 1, **characterized** in that the multimedia message containing the recorded sound clip is automatically transmitted to the receiver.

20   5.   A method according to claim 1, **characterized** in that the multimedia message containing the recorded sound clip is transmitted to the receiver as a response to confirming the message sending function (105).

6.   A method according to claim 1, **characterized** in that the multimedia message is transmitted to the number to which the original request for establishing 25   connection was made.

7.   A method according to claim 1, **characterized** in that the multimedia message is transmitted to the voicemail box of the number to the which original request for establishing a connection was made.

8.   An arrangement for transmitting a multimedia message, **characterized** in that 30   said device comprises

- means for making a request for establishing a connection targeting to a receiver (201, 202, 205, 207, 208),

- means for starting a multimedia messaging service (MMS) (204) and for activating a recording function of a sound clip (204c) of said service automatically as a response to a failed attempt for establishing a connection,

- means for recording a voice message as a sound clip of a multimedia message (201, 204, 204c, 210), and

- means for transmitting the created multimedia message to the receiver (201, 205, 207, 208).

9. An arrangement according to claim 8, **characterized** in that the device includes means for adding to the multimedia message an identifier indicating that the multimedia message was created automatically.

10. An arrangement according to claim 8, **characterized** in that the device also includes means for attaching to the multimedia message, in addition to the sound clip (204c), text (204b), picture (204a), video image (204d) or a combination of these.

11. An arrangement according to claim 8, **characterized** in that it includes means for transmitting the created multimedia message automatically to the number of the receiver to which the original request for establishing a connection was made.

12. An arrangement according to claim 8, **characterized** in that it includes means for transmitting the created multimedia message as a response to confirming the multimedia message transmission function.

13. An arrangement according to claim 8, **characterized** in that it includes means for transmitting the multimedia message to the number to which the original request for establishing a connection was made.

14. An arrangement according to claim 8, **characterized** in that it includes means for transmitting the multimedia message to a voicemail box connected to the number to which the original request for establishing a connection was made.

15. An arrangement according to claim 8, **characterized** in that said means are programmatic means.

Abstract

The invention relates to a method and arrangement for realizing a voice message in a simple and economic manner. In the method according to the invention, there is first made a request for establishing a connection with the receiving device. In case an attempt for establishing a connection fails, there is automatically started a multimedia messaging service (MMS) and the recording function of a sound clip is activated. Thereafter the desired voice message is recorded, and the message is attached as a sound clip in the multimedia message. The created multimedia message is transmitted to the receiver who was not reached.
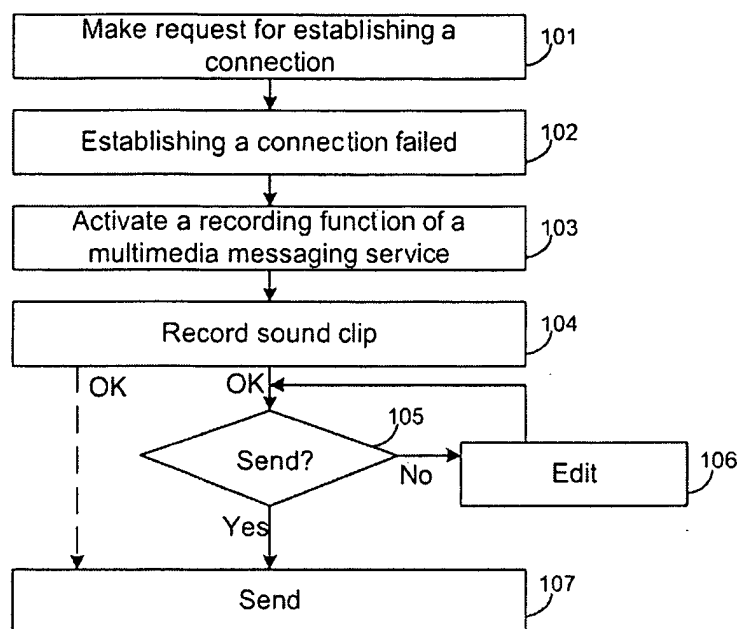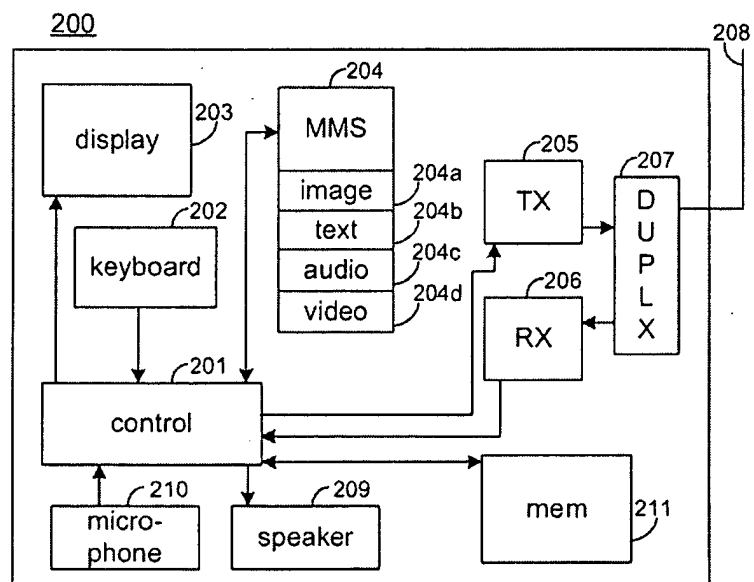
Figure 1

```
┌────────────────────────────────────┐
│ Make request for establishing a    │ ⌐101
│ connection                         │
└────────────────────────────────────┘
               │
               ▼
┌────────────────────────────────────┐
│ Establishing a connection failed   │ ⌐102
└────────────────────────────────────┘
               │
               ▼
┌────────────────────────────────────┐
│ Activate a recording function of a │ ⌐103
│ multimedia messaging service       │
└────────────────────────────────────┘
               │
               ▼
┌────────────────────────────────────┐
│ Record sound clip                  │ ⌐104
└────────────────────────────────────┘
```
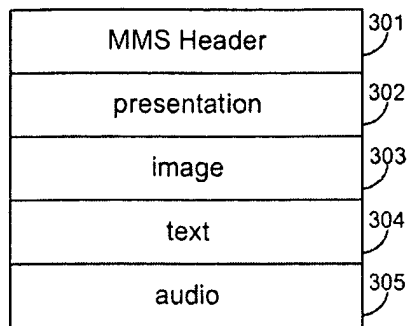
Figure 1

Figure 2

MMS Header	301
presentation	302
image	303
text	304
audio	305

Figure 3

Figure 4